

**NOMINATION FOR SECRETARY OF DEFENSE
ENVIRONMENTAL SECURITY AWARD
“ENVIRONMENTAL CLEANUP — TEAM”**



**AIR FORCE SPACE COMMAND
F. E. WARREN AIR FORCE BASE
90th SPACE WING ENVIRONMENTAL RESTORATION TEAM**



F. E. Warren, located in Cheyenne, Wyoming, is the longest continuously active base in the U.S. Air Force. Originally opened in 1867 as an Army post, the base has served a variety of military functions over the years. It currently serves as an intercontinental ballistic missile operations wing.

F. E. WARREN'S ENVIRONMENTAL RESTORATION TEAM

The F. E. Warren Air Force Base (F. E. Warren), 90th Space Wing Environmental Restoration Team (Team) is comprised primarily of the following nine individuals:

Bill Springer, Chief, Restoration Management and Restoration Advisory Board (RAB) Co-chair

John Wright, Remedial Project Manager (RPM)

Ernesto Perez, Air Force Center for Environmental Excellence (AFCEE) Project Manager

Brady Baker, AFCEE Project Manager

Dan Hytrek, Environmental Attorney

Wanda Gershmel, Information Manager

Daniel Brady, Programmer/Scheduler (Universal Technologies)

John Svoboda, Project Support, (Universal Technologies)

Sharon Hrabovsky, Field Engineer, (Booz•Allen & Hamilton Inc.)

Also vital to the Team are the U.S. Environmental Protection Agency (EPA), the Wyoming Department of Environmental Quality (WDEQ), the Air Force Space Command (AFSPC), AFCEE, and the RAB.



While conducting cleanup activities, the Team uses safeguards to protect species, such as threatened Preble's Meadow Jumping Mouse.

The Team is responsible for working with EPA, WDEQ and other stakeholders to identify and clean up contamination arising from past releases of hazardous substances, thereby protecting human health and the environment.

While managing the restoration of this National Priorities List (NPL) installation, the Team's duties include:

- Using various program management, partnering and contracting techniques to expedite cleanup and lower Installation Restoration Program (IRP) costs while achieving long-lasting results;
- Promoting partnerships between the U.S. Air Force (USAF) on base and the AFSPC, EPA, WDEQ and the community to ensure a smooth exchange of information, ongoing cooperation, and timely selection and implementation of appropriate investigation and cleanup efforts;
- Initiating remedial actions as necessary to control, eliminate or reduce imminent risks to manageable levels and expedite site cleanups; and
- Meeting or exceeding restoration goals outlined in current USAF policy.

Restoration Team Improves Management of Base Cleanup



The Team revamped the restoration management program.

In 1998, the Team undertook an intensive overhaul of the cleanup program at this highly visible and formerly struggling NPL site to improve restoration management and the cleanup schedule. The Team met regularly during the program overhaul with EPA, WDEQ, and others to determine the best steps for executing the program. Following is an overview of these steps, implemented by the Team during the last two years:

■ Step 1: Ensure Appropriate Staff and Management Structure in Place

To effectively manage the cleanup process, the program's management structure and staffing were closely investigated to ensure that the proper level of qualified staff were in place. One of the outcomes of this review was the creation of Mr. Springer's position as Chief, Restoration Management. In this role, the Chief now functions as a liaison between outside agencies, the RAB, wing senior leadership, AFSPC, and USAF Headquarters, thereby allowing the RPMs and project managers to focus on program execution.

The Team also innovatively moved the restoration element from under the direction of the Civil Engineer Squadron (CES) to directly under the 90th Space Wing Commander. By eliminating four layers of oversight and management, this move ensured focused attention is brought to bear on the program. The new reporting structure allows senior management to focus on the program's complex dynamics and requirements. As a result, credibility with Federal and state regulators has dramatically improved.

■ Step 2: Revamp Program Schedule and Determine Milestones

Through comprehensive planning meetings with EPA and WDEQ, the base was divided into five zones to allow more efficient analysis of hydrogeologic characteristics, the extent of contamination source areas and groundwater plume migration. This zonal approach has optimized field management efforts and integration of technical data, and facilitated development of conceptual models.

The Team utilized the planning meetings to negotiate dates for all major milestones while factoring in both the project's magnitude and the need to meet regulatory requirements. The result is an improved, detailed schedule for future cleanup efforts achievable from the Air Force standpoint and agreeable to EPA, WDEQ, AFSPC, and USAF Pentagon officials. The new schedule required

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"(The Team's) coordination with EPA and WDEQ is excellent, resulting in professional and effective working relationships... Communication is open and frequent."

Max Dodson, EPA Region VIII
Assistant Regional Administrator of
the Office of Ecosystems Protection
and Remediation

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"Probably our biggest success story has been the complete reorganization and rejuvenation of the F. E. Warren restoration program. The partnering efforts with our stakeholders, EPA Region VIII, the State of Wyoming, and the local community, have been tremendous."

Col. Tickel,
HQ AFSPC/CE



Effects of cleanup activities on the Colorado Butterfly Plant, an endangered species, are minimized.

additional funds in the short term, but will result in over \$8 million savings over the life of the program and accelerate achievement of USAF goals by over two years.

In order to clearly identify and track all program milestones and more than 5,800 distinct tasks, a Master Restoration Schedule (MRS) was developed. The computer technology used to build this management tool permits user-friendly, time saving and convenient identification of resource and scheduling bottlenecks, and tracking of critical path deadlines.

■ Step 3: Update Required Plans

While moving forward with the restoration efforts the Team has used a true team approach to reviewing, updating and maintaining the base Management Action Plan (MAP). Revised annually, the MAP summarizes the current status of the restoration program and presents a comprehensive strategy for work completion. The MAP includes a summary of the MRS, and is used as a living program management tool.

Throughout all planning and implementation activities, the Team ensures the program is in compliance with all applicable statutes and regulations, including the Comprehensive Environmental Response, Compensation and Liability Act, and other laws and policies affecting the restoration program. The Team also closely coordinates efforts with a number of other internal USAF offices to obligate the funds designated for cleanup. These offices include HQ AFSPC, AFCEE, contracting office, funds office, and senior wing leadership. This ensures that the program stays on track, minimizes conflicts, and enhances the wing mission.

Revamped Program Experiences Improved Efficiency and Relations

"The F. E. Warren Restoration Team can be proud of the accomplishments of the past two years, including the completion of the covers for Landfills 5a and 6, the installation of the innovative iron-filings treatment wall at Spill Site 7, the restoration of Landfill 2c, and the completion of multiple, concurrent facility investigations."

Dennis Hemmer, Director
Wyoming Department of
Environmental Quality

Since revamping the restoration program, the Team has experienced unprecedented efficiency and optimal stakeholder relations. The time required to complete site closeout has been accelerated from FY09 to FY07. Due to efficiencies realized by combining projects and utilizing cost savings for items such as preparing Work Plans ahead of schedule, the Team is currently exploring potential revisions to the program schedule which will save two years by having the final remedy in place by FY05.

The Team completed all restoration activities in 1998 and 1999 within or under budget and ahead of the Federal Facilities Agreement (FFA) required deadlines. For example, Landfill 6 (LF6) and Spill Site 7 (SS7) projects were both completed approximately 3 months ahead of schedule. The Landfill 2c (LF2c) and 5a projects were completed at over \$150,000 under budget. This was due to diligent management; superb communication between the staff, contractors, and the regulators; quick identification and resolution of problems/issues; and the contractor's willingness to propose cost-efficient construction methods. For the past three years, F. E. Warren has led AFSPC in obligation rates.

Team Uses Innovative Techniques to Clean Contamination

Over the past two years, the innovative techniques utilized have been a significant factor in moving the cleanup of F. E. Warren forward. Following are two of the innovative approaches used to address contamination.



The Team installed an iron-filings treatment wall at SS7 to clean contaminated groundwater.

Iron-Filings Treatment Wall

At Spill Site 7 (SS7), one of seven spill sites, an innovative iron-filings treatment wall was constructed to clean the groundwater contaminated by trichloroethylene (TCE) — preventing TCE from seeping into Diamond Creek. The site had the highest levels of contamination found on base and this action has the greatest potential for risk reduction. USAF, EPA, WDEQ and the community agreed on the installation of the wall because of its effectiveness in degrading contaminants to nontoxic by-products as they pass through the iron filings. Not only was this remedy cost-effective, there are relatively minor associated operation and maintenance requirements, limited primarily to groundwater monitoring. No effluent or treatment residuals are generated during operations, and using this technology will minimize long-term impacts from construction activities.



Innovative ideas and new equipment helped the Team save time and money while constructing a cover for LF6.

Geosynthetic Clay Liner

With agreement from EPA and WDEQ, a geosynthetic clay liner (GCL) cover system was constructed at Landfill (LF6) to prevent leachate carrying pollutants into the groundwater. At 51 acres, LF6 is the largest landfill on base and the only one that requires a hazardous waste landfill cover. Covering this landfill significantly reduces risk to human health and the environment. The Team completed construction three months ahead of schedule due to the application of innovative ideas and new equipment. For example, contractors used a golf course turf raker to remove rocks from the soil covering the landfill before the GCL was applied, significantly speeding up the process and reducing construction costs. A new roller system used to lay the GCL also contributed to the timesavings.

Program Protects and Enhances the Environment

Throughout the planning and implementation of cleanup activities, the Team worked closely with contractors, U.S. Fish and Wildlife officials and University of Wyoming experts, to protect rare species and habitat from destruction or degradation. The Team understands that enhancing one sector of the environment may inadvertently subject other parts of the environment to potential hazards, and has made significant efforts to ensure that all effects of cleanup activities are considered. For example, to protect the Colorado But-

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Total excavation of LF2c's contents was accomplished while leaving the site in a natural-looking state that enhanced the surroundings. (Shown above during early stages of construction and following construction.)

terfly Plant (proposed for listing under the Endangered Species Act), site runoff and sediment overflow control measures were constructed at several landfill sites. The Team is also using safeguards to protect the threatened Preble's Meadow Jumping Mouse.

During cleanup activities at LF2c, Crow Creek was rerouted in order to protect the brook trout population and to avoid degrading the stream down-gradient from the site. The environment has been enhanced at several other landfill areas, and the Team has included plans for creating wetland areas at three additional landfills where removal actions will take place. After contractors remove contamination from LF 2a/2b, they will regrade the land to create a flood retention area for nearby Crow Creek. This will help prevent severe downstream flooding within the City of Cheyenne, such as was experienced in 1985.

When the Team revamped the cleanup program, they placed a heavy emphasis on reducing the sources of hazardous waste to prevent harmful discharges to the environment. Upcoming actions to remove the contents at four landfill areas are prime examples of efforts where pollutants are being prevented from seeping further into groundwater. The installation of the iron-filings treatment wall at SS7 to cleanup groundwater contaminated by TCE is another such example. The treatment wall will minimize the potential for exposure to TCE by reducing levels in the shallow groundwater and by minimizing contaminants moving into Diamond Creek.

Program Promotes Efficient Use of Resources

By combining cleanup projects, the Team is utilizing resources efficiently, resulting in significant cost savings. For example, conducting the removal actions concurrently and using an on-base waste co-location area to store the waste removed from four landfills, will save the program approximately \$3 million in cleanup costs. Once the waste is relocated, the areas previously occupied by four landfills will be available for future development.

The use of multiple contractors to conduct restoration activities has also helped to promote efficient use of resources. The contractors responded to competition by operating efficiently and proactively suggesting areas for technical improvement and cost savings.

Efforts Support F. E. Warren's Mission



The Team ensures that restoration activities do not conflict with the Wing's mission.

The Team understands the importance of coordinating restoration efforts and always considers the overall mission in making decisions about cleanup activities. On a monthly basis, the Team briefs the Wing and Support Group Commanders on the program's status and upcoming activities, while continually soliciting input on how to enhance the Wing's mission.

The Team plans and conducts all activities according to the base General Plan, and coordinates closely with CES to avoid conflicts with other base activities. The Team also coordinates closely with security forces to eliminate impacts on the mission and informs them of all planned activities. If any conflicts with activities or mission requirements arise, the Team alternates work schedules or adjusts transportation routes as necessary.

Program is Transferable to Other Restoration Projects

The success achieved at F. E. Warren has already been recognized within the USAF. Other wings within AFSPC are using F. E. Warren's tools to manage their cleanup. For example, Vandenberg AFB recently modified F. E. Warren's MRS for use in building program requirements and managing their IRP program. A detailed MRS, with reference to the F. E. Warren program, was presented by AFCEE as a powerful program planning and management tool at the 1999 USAF Environmental Restoration Workshop.

Because of the program budget requirements included in the Air Force Restoration Information Management System (AFRIMS) and the detailed information included in the MRS, the program results will smoothly and easily continue in the event the current staff leaves for any reason. All agreements between the USAF, EPA, WDEQ, and the community, as well as all necessary actions for the future, are well documented within AFRIMS, the MRS, and the MAP.

F. E. Warren Involves the Community

"(The Team's) support of the RAB is superb. They succinctly outline the issues and go out of their way to show Board members and citizens the cleanup options."

James T. Boards, City of Cheyenne
Planning Director (RAB Community
Co-chair)

The Team recognizes that community involvement is vital to the success of the restoration program. To ensure the most effective strategy is in place for identifying and responding to community concerns and needs, the team regularly conducts cleanup-related training for RAB members and the public.

During RAB meetings, the members of the Team present program information and listen to issues of concern to the community. The Team also conducts tours for local school groups and community members so that they can witness restoration activities first hand.

A detailed quarterly newsletter is sent to over 1,500 area residents and other stakeholders to keep them up-to-date on program efforts. Included in the newsletter is a "community corner" section where local residents regularly submit comments and share their thoughts about the program.

Revamped Restoration Program Achieves Success

"The prize winning results produced by this team these past two years is directly due to the Air Force, Federal, state, and local and private participants working cooperatively and aggressively together to achieve their goals. That's true success!"
U.S. Senator Craig Thomas

F. E. Warren's restoration program has turned the corner over the past two years. Where there were once only studies and ideas for cleanup, there are now active projects. Where there were once cost-prohibitive and unproductive disagreements between agencies about managing the program, a spirit of cooperation now exists. The success of the revamped program is largely attributable to the emphasis placed on involving the regulators and community in the planning and implementation of restoration activities. The Team recognizes that coordinating efforts with regulators and the local community improves the soundness of cleanup decisions and ensures that cleanup activities are responsive to stakeholder needs.

The Team continues to work with the University of Wyoming experts and the AFCEE technology group to develop and study new cleanup methods as well as additional ways to utilize innovative technologies such as those used at SS7 and LF6. While conducting any removal actions, the Team uses controls and safeguards to protect the surrounding habitat and upon site completion, intricate steps are taken to return the land to its natural state.